



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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GOVERNOR

DAVID P. LITTELL
COMMISSIONER

**Geneva Wood Fuels, LLC
Franklin County
Strong, Maine
A-342-71-R-M**

**Departmental
Findings of Fact and Order
Air Emission License
Amendment #4**

After review of the air emissions license minor revision application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., §344 and §590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

Geneva Wood Fuels LLC (Geneva Wood Fuels) is licensed to operate a wood pellet facility in Strong, Maine and has submitted a minor revision request to update the wood dryer information. The original dryer was extensively damaged in August 2009. The replacement dryer will not result in any increases of the licensed allowed dryer emission limits. The wood fired boiler and the boiler limits remain unaffected.

The facility was issued Air Emission License A-342-71-M-N on December 28, 2007. The license was subsequently amended as follows: A-342-71-N-M (April 23, 2008), A-342-71-P-T/A (September 17, 2008), and A-342-71-Q-A (January 13, 2009).

B. Emission Equipment

The following equipment is addressed in this air emission license:

Dryer

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate (gal/hr)</u>	<u>Fuel Type</u>	<u>Stack #</u>	<u>Control Device</u>
Dryer with wood burner*	40	9073 lb/hr (50% moisture)	Wood	1	multicyclone

* Replaces previous dryer with 40 MMBtu/hr wood burner.

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C. Application Classification

This amendment will not result in changes to licensed emissions and is for a replacement unit only. Therefore, this modification is determined to be a minor revision and has been processed as such through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (last amended December 24, 2005).

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

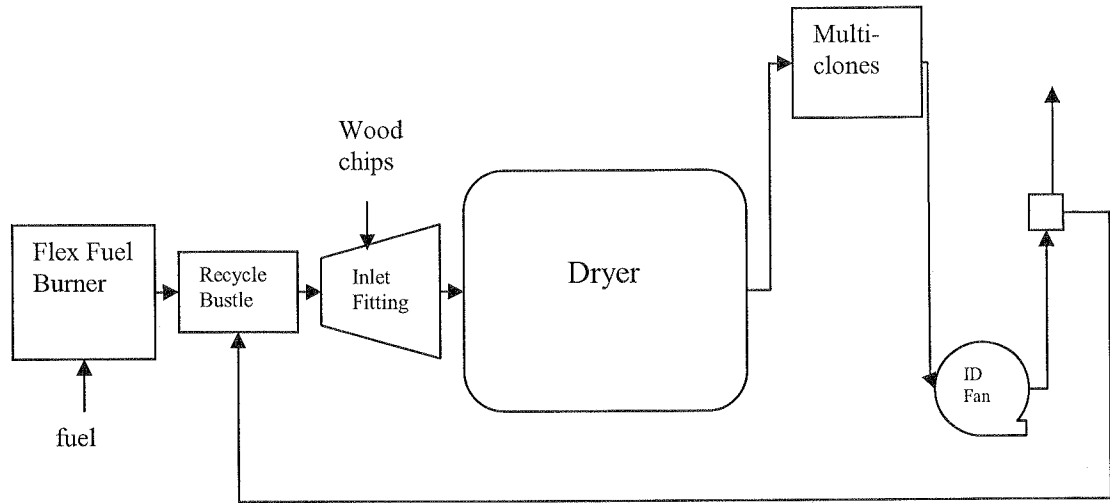
In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 CMR 100 (last amended December 24, 2005). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in 06-096 CMR 100. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

B. Wood Dryer

The original dryer at Geneva Wood Fuels is to be replaced with a single pass recycle dryer with a flex-fuel 40 MMBtu/hr burner manufactured by TSI, Inc. The replacement dryer system will also include a new multiclone to control particulate matter emissions from the drying process. The previous dryer was also rated at 40 MMBtu/hr and was controlled with a multiclone.

The proposed single pass dryer system design has a flex-fuel burner, a mixing chamber/recycle bustle, an inlet fitting, a dryer drum, and a multiclone as seen in this basic flow diagram (not to scale):



The dryer system has the following functions:

- a drum dryer with a Flighting design that provides variable residency of wood chips in the drum which results in consistent product moisture content,
- protection of dry wood chips from hot gasses which minimizes emissions,
- a longer residence time of the wood chips in the drum which enables the full use of recycle gas,
- recycle gas which provides a low oxygen, high wet bulb environment which reduces the risk of fire and enhances the drying process by improving the enthalpy of the gas (protecting the surface of the chip from overheating). The recycle system reduces emissions because of the volume of gas recycled, it improves the overall system thermal efficiency, and it provides year round stable operating conditions by eliminating the variable temperature fresh air blend, and
- programmable logic control with a human-machine interface to provide a graphic feedback and control interface for the operator.

The flex-fuel burner is a cylindrical chamber with a sloped floor lined with high temperature refractory. The fuel is metered to the burner using twin feed screws with variable frequency drives. The ash is automatically removed with an on-demand ash conveyor and the burner needs periodic cleanout to maintain proper operation. The burner has one combustion air fan for under-fire and over-fire air. This fan is modulated by process heat demand.

The refractory lined mixing chamber/recycle bustle is located after the burner and prior to the dryer's inlet fitting. It provides time for the burner gases to complete

combustion and completely mix with the dryer recycle gas prior to entering the drum.

The inlet fitting is refractory-lined with a flange mount for the infeed airlock, a louvered chute for the incoming material, tapped ports for deluge and cool down nozzles, and a flange mount for the dryer drum assembly inlet seal. Hot gasses pass through the inlet fitting into the dryer drum assembly. The louvered material chute angles down from the discharge of the infeed airlock and through the gas stream, delivering material into the dryer drum. The hot gasses passing through the louvered chute create mixed turbulence. There are two misting nozzles in the inlet fitting in order to maintain stability of the dryer system and prevent unnecessary shutdowns and possible fires.

The dryer assembly consists of the drum, the trunnions, and the drive. The drum is cylindrical and rotates on two full diameter tracks. The drums interior is a network of lifting flights and baffles, designed to shower material across the drum's cross section as it rotates and to regulate the forward movement of material through the drum. The rotation of the drum is supported on four trunnion wheels arranged in pairs at the two track locations around the outside diameter of the drum. Each pair of trunnions is mounted to a one-piece welded base to tie together the spreading force created by the weight of the drum. A seal at each end of the drum limits ambient air infiltration. The drive chains and trunnions are lubricated by an air piston auto-lube system.

The exhaust from the dryer goes through the multiclones. Dried material come out the bottom and the exhaust air continues out the top, through the ID fan and out the stack.

BACT for the replacement dryer is the new unit and its proposed operation, the existing license emission limits, and the new multiclone.

The following condition shall be applicable to the new unit, as revised in air emission license A-342-71-Q-A (Note stack tests were not performed on the previous unit since it became inoperable before the stack test deadline occurred. This unit will have the same deadline to stack test within six months of start-up):

Condition (17) - Dryer

A. Emissions from the Dryer Process (including the 40 MMBtu/hr wood dryer burner) shall not exceed the following: [06-096 CMR 115, BACT]

PM (lb/hr)	PM₁₀ (lb/hr)	SO₂ (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
12.25	2.42	1.88	6.75	5.0	13.8

- B. Visible emissions from the dryer stack shall not exceed 20% opacity on a 6-minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period. [06-096 CMR 101]
- C. The inlet temperature of the rotary dryer shall be monitored on a continuous basis for a minimum of 95% of the time the rotary dryer is operating, except during periods of startup, shutdown, or malfunction. The inlet temperature of the rotary dryer shall be recorded at least once per shift. The date and time of each temperature reading shall also be recorded. The temperature monitoring system shall be installed, operated, maintained, and calibrated in accordance with the manufacturer's recommendations. [06-096 CMR 115, BACT]
- D. Geneva Wood Fuels shall limit the dryer use to 7500 hours/year. An hour meter shall be installed and operated on the dryer and records shall be maintained daily, monthly, and on a 12 month rolling total. [06-096 CMR 115, BACT]
- E. Geneva Wood Fuels shall maintain wood fuel records for the dryer burner on a daily, monthly, and 12 month rolling total. [06-096 CMR 115, BACT]
- F. Geneva Wood Fuels shall keep records on the amount of product output on a monthly basis. [06-096 CMR 115, BACT]
- G. Geneva Wood Fuels shall maintain a log detailing all routine and non-routine maintenance on the multiclone system. The log shall include the date and nature of all multiclone system failures. [06-096 CMR 115, BACT]
- H. Geneva Wood Fuels shall record each startup, shutdown, and malfunction event of the dryer and multiclone including start time, end time, duration, cause, and method utilized to minimize the duration of the event and/or to prevent a reoccurrence. [06-096 CMR 115]
- I. Within six months of start-up, Geneva Wood Fuels shall perform PM, PM₁₀, CO, and VOC stack tests on Dryer #1 in accordance with the appropriate EPA test methods. [06-096 CMR 115, BACT]

C. Annual Emissions

Geneva Wood Fuels shall continue to be restricted to the following annual emissions, based on a 12 month rolling total and calculated from an annual boiler fuel limit of 28,000 tons/year wood waste (55% moisture or equivalent) and an annual operating limit on the dryer of 7500 hrs/yr at the production rate of 64,500 lb/hr green wood:

Total Licensed Annual Emissions for the Facility

Tons/year

(used to calculate the annual license fee)

	PM	PM₁₀	SO₂	NO_x	CO	VOC
Boiler	30.2	21.0	4.0	30.2	100.8	6.0
Dryer	45.9	9.1	7.1	25.3	18.8	51.8
Total TPY	76.1	30.1	11.1	55.5	119.6	57.8

III.AMBIENT AIR QUALITY ANALYSIS

Geneva Wood Fuels previously submitted an ambient air quality analysis in air license amendment A-342-71-Q-A (January 13, 2009) demonstrating that emissions from the facility, in conjunction with all other sources, do not violate ambient air quality standards. An additional ambient air quality analysis is not required for this minor revision.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-342-71-R-M subject to the conditions found in Air Emission License A-342-71-M-N, in amendments A-342-71-N-M, A-342-71-P-T/A, A-342-71-Q-A and in the following conditions.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

SPECIFIC CONDITIONS

The following is a new condition:

- (25) Geneva Wood Fuels may replace the currently licensed dryer with the proposed dryer described in this minor revision. The requirements for the previous dryer and multiclone shall be applied to the new unit per the revised

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condition (17) in air emission license A-342-71-Q-A. [06-096 CMR 115,
BACT, A-342-71-Q-A (January 13, 2009)]

DONE AND DATED IN AUGUSTA, MAINE THIS 17th DAY OF March, 2010.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: James P. Bradley
DAVID P. LITTELL, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission
License A-342-71-M-N.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: January 29, 2010

Date of application acceptance: February 1, 2010

Date filed with the Board of Environmental Protection:

This Order prepared by Kathleen E. Tarbuck, Bureau of Air Quality.

